

tions also, death is the consequence of frequent suspensions of respiration—the patients die from the same proximate cause, as an animal which is drowned, by being alternately plunged into, and drawn out of water.\*

Charleston, August 14th, 1830.

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ART. VIII. *Irritation of the Spinal Cord.* By WILLIAM HITCH,  
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THE persevering efforts of physiologists have at length succeeded in attaining pretty extensive credit to a few general propositions in relation to the nervous system. That all the operations of the animal economy, from the minutest movements in the secretory process, to the highest effort of reason and imagination, are dependent upon the agency of nervous influence, will, we believe, soon be regarded as an established doctrine in philosophical medicine; and, consequently, the laws of the nervous system are the laws of life. The mechanical and chemical theories have left not a wreck behind—the principle of life, or nervous influence, is acknowledged to be the point to which all observations should be directed. But of the internal nature of this important agent, its properties, mode of acting, or of being acted upon, we are almost profoundly ignorant. A stimulus acts upon an organ—it performs its functions—this we see, but the part borne by this mysterious agent of life in the affair, is totally veiled from view.

The experiments of CHARLES BELL sustained by other gentlemen of his own country, and by ingenious observations and speculation of some of the continental physicians, have enabled us to make a slight advance towards a classification of the very interesting phenomena of the nervous system. In the first stage of their generalization they speak of the cerebro-spinal and ganglionic system; the former, presiding over the intellectual operations, voluntary and respiratory motions, and all the functions of relative life; the latter, controlling organic life, nutrition, absorption, secretion, &c. To the ganglionic system are referred all phenomena of inflammation. The cerebral system is again subdivided by Mr. Bell into symmetrical and irregular; the former, consisting of thirty-one pairs of nerves with double roots, the fifth, sub-occipital, and the spinal, common to all animals, for the purposes of sensation and voluntary motion; the latter, distinguished by single roots, superadded, according to the number and

\* Bichat's Researches, Part II. Art. VI. Sect. II.

complication of superadded organs, for all the varieties of respiration, speech, and the expression of emotions. In reference to these views, and for its practical utility, the following case of spinal irritation may perhaps be worthy of notice.

March 15th, 1829, I was called, in consultation, to see Deborah Lynch, ætat. 14. Eight months before, she had lost the use of her superior extremities. They had gradually ceased to be under the controul of the will; and when voluntary motions were attempted, they were not properly executed—the limb always moving the contrary way to that intended. Her physician resorted to the usual treatment, cathartics, tonics, stimulating frictions, &c. with so little success, that four weeks after the appearance of the first symptoms, the inferior extremities also became implicated, and, in a few days, totally paralyzed.

When I saw her, she had been confined seven months, unable to move herself; she complained much of a dull pain and indescribable uneasiness when her inferior extremities were suffered to remain a few hours in one position, and often most earnestly entreated her attendants to move them. It required considerable strength to do this—either to extend them when flexed, or flex them when extended. Any mental disturbance from whatever cause, as the introduction of a stranger of a station in life superior to herself, or any disobliging conduct on the part of her elder sisters, would cause such convulsive agitation in her limbs, as to shake the room in which she lay, and gave her so much pain, that she would most earnestly entreat her mother, or some one near, to press upon them, and stop their motion.

Her extremities were much shrunk from their natural size, of a purplish hue; sensibility much impaired, but her general health had not suffered; her face indeed had the appearance of unusual health; all the thoracic and abdominal organs performed their functions with little interruption during the whole period of her confinement, nor had her disease prevented, or even suspended the full and healthy development of the various changes in the female system incident to the age of puberty.

She was questioned, but gave no information that could lead to a satisfactory diagnosis. Upon examination of the spinal column, however, from whence we supposed the disease most probably emanated, we found the spinous process of the fifth cervical vertebra, inclining to the right, unnaturally depressed, and that pressure on the lateral portion of the vertebra was painful.

Upon again questioning her, whether she had not been injured in this part, she now recollects, that about three years before she had

lost the use of her limbs: an elder sister, upon her refusing to carry a bag of sumach berries which they had gathered, threw it with considerable force across her neck, by which she was prostrated to the earth. The shock gave her considerable pain, which had been continued at intervals up to the time of her confinement, but since that time, the pains in her inferior extremities having been so much more intense, the uneasiness in the neck, and the injury sustained there, had been forgotten.

Having now ascertained the seat of the disease, to excite a permanent counter-irritation, we applied a seton immediately over the affected part. A strip of linen an inch wide was introduced, and on returning five or six days after, we found some granulations shooting out of the wound—the discharge of matter was trifling. For the purpose of procuring a discharge more copious, and for the removal of the granulations, we caused the strip of linen to be wet, several times a day, with a pretty strong solution of the sulphate of copper, to be continued until the granulations were destroyed, and the discharge of matter become more copious. No alteration appeared in her condition until the expiration of three months, when the superior extremities returned gradually under the controul of the will, and have since remained free from the slightest muscular irregularity; but she was yet incapable of giving the smallest motion to the inferior extremities. Encouraged at our ends having been thus far accomplished, the superior extremities having returned under the controul of the will, and rapidly approaching to a perfectly healthy condition, the consummation of which required only the stimulus of action, we felt exceedingly anxious to try a seton about the lumbar region. To this the patient positively objected—the seton in the neck, she said, had been so exquisitely painful, that she would not endure another, even if assured of being restored thereby to the use of her inferior limbs. Determined not to abandon the case after gaining so much, we requested her to let us place a plaster on her back, to which she readily assented. The plaster was applied, charged with the potential cautery, and remained twelve hours. On its removal, the impression made seemed considerable. The part was dressed with unguentum basilicon, which was suffered to remain until the next day, when we found a fine deep ulcer extending six inches along the spinal column, and one inch wide; this ulcer discharged copiously for six weeks, and at the expiration of three months, the patient found no difficulty in walking, has since remained in good health, and can undergo more bodily exertion than any of her sisters.

Baltimore, August 16th, 1830.